3.1 INTRODUCTION

The MRBCA process starts with the initial suspicion of release followed by activities that either confirm or refute the release. If the release is confirmed, the MRBCA process continues until MDNR issues a "No Further Action" (NFA) letter for the release. Note, however, as previously stated, the MRBCA process does not include emergency response activities conducted under 260.500 through 260.550 RSMo and the regulations promulgated thereunder.

A number of different events may trigger site-specific activities that may ultimately lead to site discovery. These include but are not limited to:

- Observation of petroleum products on or near a site, e.g., in utilities, on or adjacent to surface water bodies, in observation wells, etc.,
- Unusual underground storage tank (UST) system operating conditions, e.g., sudden loss of product in tanks, erratic behavior of product dispensing equipment, etc.,
- Monitoring results from a leak detection system,
- Phase I or phase II investigations associated with real estate transactions,
- Accidental release, e.g., during refueling of UST's by tankers, and
- Complaints of odors at or adjacent to a site.

In each of the above cases, the owner/operator of the UST system must report in writing to MDNR within 24 hours of suspicion and/or confirmation of release ***(10 Code of State Regulations (CSR) 20-10.050 Reporting of Suspected Releases)*****,** as directed at 3.2 below. Once a release has been confirmed, a site characterization will be necessary to collect relevant data to perform a risk-based evaluation (also refer to Section 5.0). Note, however, that MRBCA data collection activities are secondary to addressing all imminent threats and hazardous conditions posed by a release.

3.2 INVESTIGATION OF IMMINENT THREAT

In all of the above cases the first step upon suspicion and/or confirmation of a release is to report the release to MDNR at the earliest practical moment.

The following points briefly summarize the requirements of Sections 260.500 through 260.550, Revised Statues of Missouri (RSMo). Note that MDNR's Environmental Services Program (ESP) administers the referenced requirements.

- Any release of petroleum in excess of 50 gallons (25 gallons for USTs), constitutes a hazardous substance emergency,
- Releases shall be reported to the MDNR at (573) 634-2436 at the earliest practical moment,

- MDNR will evaluate whether an imminent threat exists,
- MDNR may require a person having control over a hazardous substance emergency to clean up the release and take any reasonable actions to end the hazardous substance emergency,
- MDNR may require such persons to take such actions as may be reasonably required to prevent recurrence of the hazardous substance emergency, and
- In the event such persons fail to act, MDNR may take action and pursue recovery of its costs.

Upon completion and documentation of the emergency response activities, and if the release of petroleum hydrocarbon is confirmed, additional data may have to be collected to perform a risk-based evaluation.

In no case will MDNR approve a risk assessment or risk management plan if a hazardous substance emergency exists or is likely to occur, unless such conditions are specifically addressed either through interim corrective actions or through measures contained in the final Risk Management Plan (RMP).

3.3 INVESTIGATION OF SUSPECTED RELEASE

As indicated in 10 CSR 20-10.052, the owner/operator must immediately investigate and confirm all suspected releases of regulated substances within 7 days or as directed by MDNR. Investigation may include, but is not necessarily limited to, a system tightness test and a site check.

If a system check reveals a leak, the owner/operator must repair the leak or replace relevant components of the system. Upon repair of the leak, a site investigation may be necessary to determine the extent of contamination resulting from the release and to perform a risk-based evaluation.

If a system check does not reveal any leaks and the suspicion of release was not based on an environmental condition (i.e., petroleum in the environment), no further investigation would be necessary. However, if the suspicion of release is based on an environmental condition, the owner/operator must conduct a site check that involves collection of soil and or groundwater samples (refer to 10 CSR 20-10.052 1(B)) or other measurements to determine whether a release has occurred. If a release is confirmed, additional data shall be collected and a risk-based evaluation performed.

In all of the above cases, in addition to the notification discussed at subsection 3.2 above, the owner/operator must report to MDNR, within 7 days of the suspicion of release, the activities conducted and whether the suspected release has been confirmed.

3.4 INVESTIGATION OF CONFIRMED RELEASE

When a release is confirmed, the owner/operator must take immediate steps to (i) prevent any additional release to the environment, and (ii) mitigate any fire, safety or other immediate hazards to human health or the environment.

Within 20 days after release confirmation, the owner/operator must submit a report to MDNR summarizing the initial abatement steps (10 CSR 20-10.062).

3.5 REPORTING AND CLEAN-UP OF SPILLS AND OVERFILLS

The owner/operator must contain and immediately clean up a spill or overfill. If the spill results in a release of more than 25 gallons of petroleum product to the environment (or less than 25 gallons if clean-up cannot be accomplished in 24 hours), the spill must be reported to MDNR within 24 hours by calling (573) 634-2436 and The National Response Center at (800) 424-8802. If the spill/overfill has not been cleaned up, additional data shall be collected and a risk-based evaluation performed.

3.6 INITIAL SITE CHARACTERIZATION

After all initial emergency and hazard abatement steps have been completed, no imminent threats exist at the site, and a release is confirmed, the owner/operator must proceed to collect data necessary to perform a risk-based evaluation. Specifics of the type and quantity of data required are presented in Section 5.0 of this document.

3.7 REMOVAL OF LIGHT NON-AQUEOUS PHASE LIQUID (LNAPL)

At sites where investigation reveals the presence of LNAPL, also called free product, in the environment (including the tank pit), the entity performing the investigation shall remove as much LNAPL as practicable based on current state-of-the-practice as determined and approved by MDNR. The primary objective of LNAPL removal is to (i) prevent risk of fire and explosion, (ii) reduce risk to human health and the environment to an acceptable level, and (iii) prevent further expansion of the dissolved and LNAPL plume.

MDNR shall evaluate the practicability of LNAPL removal by evaluating the methods commonly available for such removal, removal rates over time using removal methods appropriate to a particular site given physical site conditions, the geology associated with the site of LNAPL, the characteristics of the LNAPL and its constituent parts, the extent to which remaining LNAPL is contributing to the expansion of a dissolved phase contaminant plume in groundwater, and the fate and consequence of the dissolved phase plume. An evaluation of the practicability of LNAPL removal shall be undertaken only after reasonable attempts have been made to remove the LNAPL from the environment.

At any given site being evaluated under the MRBCA process, when LNAPL removal activities mandated by 10 CSR 25-10.064 have reached asymptotic recovery rates or LNAPL removal is demonstrably impracticable, and data shows that the remaining LNAPL does not

pose an unacceptable risk to human health or the environment, the groundwater plume is demonstrably stable or shrinking, and the LNAPL poses no risk of explosion, further LNAPL removal might not be required.

The evaluator must prepare and submit to MDNR a LNAPL removal report within 45 days of confirmation of a release as per 10 CSR 20-10.064. Refer to Section 6.8 of this document for further information regarding the evaluation of LNAPL.

3.8 COLLECTION AND EVALUATION OF DATA

Geologic data collected as a part of a MRBCA evaluation must be collected by or under the direct supervision of a geologist or qualified professional engineer registered by the State of Missouri, as such data will be used in a manner that affects or has the potential to affect public health, safety and welfare. Also, the interpretation of geologic data that affects or has the potential to affect public health, safety and welfare, must also be conducted by or under the supervision of a Missouri-registered geologist or qualified professional engineer.

All work so performed shall be signed and sealed by the registered geologist in responsible charge or qualified professional engineer. If the work is not properly signed and sealed, the department will not provide final acceptance or approval of such work.

3.9 NO FURTHER ACTION BASED ON DEFAULT TARGET LEVELS

At tank sites impacted by petroleum product release(s), soil and groundwater characterization typically starts at the point or area of release where the concentrations of COCs are the highest. Upon collection of this data, the maximum COC concentrations may be compared with the default target levels (DTLs) (refer to Table 3-1). If the maximum soil and groundwater concentrations do not exceed the DTLs and the site does not pose an obvious threat to ecological receptors, remediation is not warranted and the entity performing the evaluation may request a NFA without activity and use limitations (AULs). Further, if these conditions are met, an ecological screening assessment as per Section 6.6 of this guidance will not be required.

Table 3-1
Default Target Levels

Chemicals of Concern	Soil (mg/kg)		Groundwater (mg/L)	
Benzene	4.24E-02	Inh	5.00E-03	Ing
Toluene	6.97E+00	Inh	1.00E+00	Ing
Ethylbenzene	3.20E+01	Inh	7.00E-01	Ing
Xylenes (mixed)	2.86E+01	Inh	1.00E+01	Ing
Ethylene Dibromide (EDB)	5.31E-04	Gwp	5.00E-05	Ing
Ethylene Dichloride (EDC)	1.30E-02	Gwp	1.56E-03	Ing
Methyl-tert-butyl-ether(MTBE)	6.21E-01	Gwp	1.46E-01	Ing
Acenaphthene	7.70E+01	Gwp	7.28E-02	Ing
Anthracene	1.60E+03	Gwp	3.64E-01	Ing
Benzo(a)anthracene	1.84E+00	DC	9.21E-04	Ing
Benzo(a)pyrene	1.90E-01	DC	2.00E-04	Ing
Benzo(b)fluoranthene	1.84E+00	DC	9.21E-04	Ing
Benzo(k)fluoranthene	1.84E+01	DC	9.21E-03	Ing
Chrysene	1.83E+02	DC	9.21E-02	Ing
Dibenzo(a,h)anthracene	1.84E-01	DC	9.21E-05	Ing
Fluoranthene	1.19E+03	DC	6.26E-01	Ing
Fluorene	9.99E+01	Gwp	4.86E-02	Ing
Napthalene	3.93E-01	Gwp	1.31E-03	Ing
Pyrene	7.51E+02	DC	4.69E-01	Ing
TPH-GRO	2.76E+01	Inh	2.33E+00	Ing
TPH-DRO	1.04E+03	Inh	2.86E+01	Inh
TPH-ORO	5.08E+04	DC	3.18E+01	Ing
>C6 - C8 (Aliphatics)	1.17E+01	Inh	9.69E-01	Inh
>C8 - C10 (Aliphatics)	2.55E+00	Inh	3.43E-02	Inh
>C10 - C12 (Aliphatics)	1.27E+01	Inh	2.29E-02	Inh
>C12 - C16 (Aliphatics)	5.77E+02	Inh	5.28E-02	Inh
>C16 - C35 (Aliphatics)	5.02E+04	DC	3.13E+01	Ing
>C8 - C10 (Aromatics)	1.33E+01	Inh	6.36E-02	Ing
>C10 - C12 (Aromatics)	2.40E+01	Gwp	6.36E-02	Ing
>C12 - C16 (Aromatics)	4.76E+01	Gwp	6.36E-02	Ing
>C16 - C21 (Aromatics)	4.08E+02	Gwp	1.73E-01	Ing
>C21 - C35 (Aromatics)	6.25E+02	DC	4.69E-01	Ing
Tertiary-amyl-methyl-ether (TAME)	2.14E+00	Gwp	2.31E-01	Ing
Tertiary-butyl- alcohol (TBA)	3.26E-01	Gwp	1.04E-01	Ing
Ethyl-tert-butyl-ether (ETBE)	4.68E-02	Gwp	5.52E-03	Ing
Diisopropyl ether (DIPE)	5.63E-03	Gwp	4.38E-04	Ing
Ethanol	1.54E+00	Gwp	5.80E-01	Ing
Methanol	4.18E-01	Gwp	1.09E-01	Ing
Arsenic	4.35E+00	DC	1.00E-02	Ing
Barium	4.50E+03	DC	2.00E+00	Ing
Cadmium	3.23E+01	DC	5.00E-03	Ing
Chromium	3.76E+04	DC	8.64E+00	Ing
Lead	2.50E+02	NA	1.50E-02	NA
Selenium	1.34E+02	DC	2.88E-02	Ing

Notes:
DC : Direct contact pathway NA: Not Applicable
Gwp: Protection of domestic groundwater use pathway
Ing: Ingestion of water
Inh: Indoor inhalation pathway